

**REMARKS**

The title and abstract have been amended according to the Examiner's request. The specification has been reviewed and the format is believed acceptable.

Claim 1 has been amended to delete prodrugs, hydrates, solvates and crystal forms. Applicants understand that the claim in any event generically covers all of these, and deletion of these specified embodiments is made to expedite prosecution.

Claim 3 has been amended to delete compounds that do not fall within the elected invention as well as being clarified to indicate that salts and diastereomers are included. As applicants understand the restriction requirement, applicants elected Group I drawn to substituted benzimidazoles of Formula I where A is pyrazinyl, pyrimidyl or pyridyl and Q is a bond. Applicants have deleted compounds listed in claim 3 that do not contain these features. If some compounds that do not contain them have been missed, applicants would appreciate their attention being drawn specifically to them.

Claims 10-13 have been canceled to expedite prosecution. No new matter has been added and entry of the amendment is respectfully requested.

Applicants appreciate that claim 3, other than being objected to for including compounds outside the elected scope, appears to be in a position for allowance.

**Claim Objections**

As noted above, claim 3 has been amended to delete compounds which do not fall within the scope of the elected invention.

Claims 4, 5 and 10-13 were objected to as being of improper dependent form. Claims 10-13 have been canceled to expedite prosecution. As to claims 4 and 5, respectfully, applicants believe these claims are properly dependent. As to claim 4, it is not necessarily the case that all of the compounds falling within the scope of claim 1 irreversibly inhibit JAK3. Even though their structures are similar, some may inhibit reversibly or perhaps only weakly. Similarly, for claim 5, not all of the compounds of claim 1 necessarily selectively inhibit JAK3 with respect to JAK1 or JAK2.

Thus, each of claims 4 and 5 provides an additional functional limitation to the structural limitations set forth in claim 1 and are properly dependent thereon.

#### The Rejection Under 35 U.S.C. § 112, Paragraph 1

The Office objects to the inclusion specifically of prodrugs, hydrates, solvates and crystal forms in the recitation of claim 1 and its dependent claims. Reference to these specific embodiments has been removed thus obviating this basis for rejection. While these forms would generically be covered in any event, specific mention of them no longer is set forth in the claim.

#### The Rejection Under 35 U.S.C. § 112, Paragraph 1

Only claims 10-13 were rejected under this section of the statute and these claims have been canceled.

#### The Art Rejection

Claims 1, 2, 4-6 and 10-13 were rejected as assertedly obvious over Goulet, *et al.* (U.S. 6,329,380). It is noted with appreciation that claim 3 is free of this art rejection. As noted above, claims 10-13 have been canceled.

As the Examiner correctly points out, Goulet teaches compounds that are superficially similar to those of the present claims as Src kinase inhibitors. The Office points to example 48 of Goulet as disclosing a homolog for the designated embodiments of Z in the formulas of claims 1 and 2.

However, in this case, the embodiments of Z are functionally different from the “homolog” incidentally described by Goulet. The embodiments of Z in the present invention all provide  $\alpha,\beta$  unsaturated systems which makes them functional as Michael acceptors, and specifically, in the intended function of the present invention, able to react with a crucial cysteine residue in the kinase to be inhibited. Since the “homolog” of Goulet does not contain an  $\alpha,\beta$  unsaturated system, it does not have this ability, and thus lacks an essential feature of the present invention. As disclosed in the present invention, most conveniently envisioned as set forth in the canceled original claims 10-13, this configuration as a Michael acceptor is responsible for reacting with the crucial cysteine and responsible for successful inhibition.

Taking Goulet as a whole, is it clear that there is no appreciation of the necessity for including a Michael acceptor as a substituent on the benzimidazole. None of the possible embodiments even listed generically would serve such a function. Certainly none of the exemplified compounds set forth in Goulet would have this ability. Accordingly, in this particular instance, it is clear that mere homology is insufficient to suggest the compounds of the present invention.

One further point that might be made is that the present compounds are designed to be JAK inhibitors while the Goulet compounds are designed to be Src inhibitors. Enclosed as Exhibit 1 is a diagram of the relevant portions of the human tyrosine kinase family. It will be seen that the Src

portion is on a different branch of the TK limb as compared to JAK. It is understood in the art that many JAK inhibitors do not inhibit Src appreciably, and similarly, many Src inhibitors do not inhibit JAK. In addition, Src kinases do not have a cysteine residue in the relevant section of the protein, which is the feature with which the compounds of the invention are designed to interact.

For these reasons, applicants respectfully request that the rejection over Goulet be withdrawn.

#### Double-Patenting

Claims 1-2, 4-6 and 10-13 were provisionally rejected as obviousness-type double-patenting over designated claims of copending application 10/581,412. A terminal disclaimer with respect to this application is submitted herewith, thus obviating this basis for rejection.

#### Conclusion

The amendments to the claims obviate the rejections under 35 U.S.C. § 112, paragraph 1, the claim objections, and the rejection under 35 U.S.C. § 112, paragraph 2. The double-patenting rejection is obviated with a terminal disclaimer. This leaves only the rejection over Goulet which was not applied to claim 3; accordingly, clearly claim 3 is in position for allowance.

As to the remaining claims, it has been demonstrated that Goulet fails to suggest the essential feature of the present invention — *i.e.*, the presence, as substituent Z on benzimidazole, of a Michael addition acceptor permitting a Michael addition reaction with cysteine. Accordingly, claims 1-2 and 4-6 are free of the art as well.

As the claims to the compositions are in a position for allowance, rejoinder and allowance of claims 7 and 9 is also respectfully requested.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket No. 415850001100.

Dated: October 9, 2009

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